

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1. (Original): A computerized method for translating source code into object code, comprising:
 - recognizing a history operator and a history operand in the source code;
 - generating first object code that, when executed, saves a data history associated with an instance of the history operand; and
 - generating second object code that, when executed, performs the history operator on the data history.
 2. (Original): The method of claim 1, wherein the first object code further saves values assigned to a variable in the data history when the object code is executed.
 3. (Original): The method of claim 1, wherein the history operand further comprises an expression of variables and wherein the first object code further saves a result of the expression in the data history.
 4. (Original): The method of claim 1, wherein generating first object code further comprises allocating storage for the data history.
 5. (Original): The method of claim 2, wherein the data history further comprises program locations where the assignments occurred and timestamps indicating when the assignment was made.
 6. (Original): The method of claim 1, wherein performing the history operator on the data history further comprises:
 - querying the data history based on contents of the data history.

7. (Original): The method of claim 1, wherein the history operand comprises a function and the data history comprises values returned by the function.

8. (Original): The method of claim 7, wherein the data history further comprises program locations where the values were returned and timestamps indicating when the values were returned.

9. (Original): The method of claim 1, wherein the history operand comprises a label associated with a source code statement, and wherein performing the history operator on the data history further comprises:

counting a number of times the source code statement associated with the label was executed.

10. (Original): The method of claim 9, wherein the label is programmer-defined.

11. (Original): The method of claim 9, wherein the label comprises a programming language control construct.

12. (Original): The method of claim 1, wherein performing the history operator on the data history is a function selected from a group consisting of:

summing the data history, averaging the data history, determining a maximum of the data history, selecting an element of the data history, determining a minimum of the data history, determining a number of values in the data history, determining a first entry in the data history, determining a last entry in the data history, determining a subsequence of the data history, performing a reduction operation, and performing a statistical function.

13. (Original): The method of claim 1, wherein:

the history operand comprises a programming language keyword representing a loop; and

the history operator comprises an iteration count of the loop.

14. (Original): The method of claim 1, wherein saving the data history further comprises:
saving the data history in an array, wherein each element of the array comprises a value associated with the history operand at a particular time.
15. (Original): The method of claim 1, wherein saving the data history further comprises;
saving the data history in a linked list.
16. (Original): The method of claim 1, wherein saving the data history further comprises:
saving the data history in a file.
17. (Original): The method of claim 1, wherein performing the history operator on the data history further comprises:
resetting the data history to null.
18. (Original): The method of claim 1, wherein saving the data history and performing the history operator further comprise updating an accumulator.
19. (Original): A computer-readable medium containing source code, wherein the source code comprises:
a history operand to direct a translator to generate first object code that, when executed, saves a data history associated with an instance of the history operand; and
a history operator to direct the translator to generate object second code that, when executed, performs the history operator on the data history.
20. (Original): The computer-readable medium of claim 19, wherein the history operand comprises a variable and the data history comprises values assigned to the variable.
21. (Original): The computer-readable medium of claim 19, wherein the history operand comprises an expression of variables and the data history comprises a result of the expression.

22. (Original): The computer-readable medium of claim 19, wherein the history operand comprises a heap-allocated object.

23. (Original): The computer-readable medium of claim 19, wherein the history operand comprises a function and the data history comprises values returned by the function.

24. (Original): The computer-readable medium of claim 23, wherein the data history further comprises program locations where the values were returned and timestamps indicating when the values were returned.

25. (Original): The computer-readable medium of claim 19, wherein the history operand comprises a label associated with a source code statement, and wherein performing the history operator on the data history further comprises:

counting a number of times the source code statement associated with the label has been executed.

26. (Original): A computer-readable medium having computer-executable instructions for performing steps comprising:

recognizing a history operand in source code;

finding at least one instance of the history operand in the source code in response to recognizing the history operand;

allocating storage; and

generating first object code associated with each instance, wherein the first object code, when executed, saves a data history associated with the history operand in the storage.

27. (Original): The computer-readable medium of claim 26, further comprising:

recognizing a history operator in the source code; and

generating second object code that, when executed, performs the history operator on the data history.

28. (Original): The computer-readable medium of claim 26, wherein performing the history operator on the data history further comprises:

querying the data history based on contents of the data history.

29. (Original): The computer-readable medium of claim 26, wherein the history operand comprises a label associated with a source code statement, and wherein performing the history operator on the data history further comprises:

counting a number of times the source code statement associated with the label has been executed.

30. (Original): The computer-readable medium of claim 26, wherein performing the history operator on the data history is a function selected from a group consisting of:

summing the data history, averaging the data history, determining a maximum of the data history, determining a number of values in the data history, determining a first entry in the data history, determining a last entry in the data history, determining a subsequence of the data history, performing a reduction operation, and performing a statistical function.

31. (Original): A computer system comprising:

a processor;

memory coupled to the processor, wherein the memory contains a translator for translating source code into object code, wherein the translator comprises instructions, wherein the instructions when executed on the processor comprise:

recognizing a history operand in the source code, wherein the source code is contained in the memory;

in response to recognizing the history operand, finding at least one instance of the history operand in the source code;

allocating storage for a data history associated with the history operand;

generating first object code associated with each instance, wherein the first object code, when executed, saves the data history associated with the history operand in the storage; and

generating second object code that, when executed, performs the history operator on the data history.

32. (Original): The computer system of claim 31, wherein the first object code further saves values assigned to a variable, wherein the variable is an instance of the history operand.

33. (Original): The computer system of claim 31, wherein the second object code, when executed, performs a function selected from a group consisting of:

summing the data history, averaging the data history, determining a maximum of the data history, determining a number of values in the data history, determining a first entry in the data history, determining a last entry in the data history, determining a subsequence of the data history, performing a reduction operation, and performing a statistical function.

34. (Original): The computer system of claim 31, wherein the history operand comprises a label associated with a source code statement, and wherein the second object code, when executed, further comprises:

counting a number of times the source code statement associated with the label has been executed.

35. (Original): A computer-readable medium having stored thereon a data structure, comprising:

a first data field containing data representing a value associated with an instance of a history operand; and

a second data field containing data representing a location within a program where the value was assigned.

36. (Original): The computer-readable medium of claim 35, further comprising:

a third data field containing a timestamp representing a time when the value was assigned.

37. (Original): The computer-readable medium of claim 35, wherein the data structure further comprises a plurality of entries for each of the first and second data fields and wherein the plurality of entries represent a history of the values associated with the history operand as the program executes.

38. (Original): A computerized method for interpreting source code, comprising:
recognizing a history operator and a history operand in the source code;
saving a data history associated with an instance of the history operand; and
performing the history operator on the data history.

39. (Original): The method of claim 38, wherein saving the data history further comprises saving values assigned to a variable in the data history when the object code is executed.

40. (Original): The method of claim 38, wherein the history operand further comprises an expression of variables and wherein saving the data history further comprises saving a result of the expression in the data history.

41. (Original): The method of claim 38, wherein saving the data history further comprises allocating storage for the data history.

42. (Original): The method of claim 39, wherein the data history further comprises program locations where the assignments occurred and timestamps indicating when the assignment was made.

43. (Original): The method of claim 38, wherein performing the history operator on the data history further comprises:
querying the data history based on contents of the data history.

44. (Original): The method of claim 38, wherein the history operand comprises a function and the data history comprises values returned by the function.

45. (Original): The method of claim 44, wherein the data history further comprises program locations where the values were returned and timestamps indicating when the values were returned.

46. (Original): The method of claim 38, wherein the history operand comprises a label associated with a source code statement, and wherein performing the history operator on the data history further comprises:

counting a number of times the source code statement associated with the label was executed.

47. (Original): The method of claim 46, wherein the label is programmer-defined.

48. (Original): The method of claim 46, wherein the label comprises a programming language control construct.

49. (Original): The method of claim 38, wherein performing the history operator on the data history is a function selected from a group consisting of:

summing the data history, averaging the data history, determining a maximum of the data history, selecting an element of the data history, determining a minimum of the data history, determining a number of values in the data history, determining a first entry in the data history, determining a last entry in the data history, determining a subsequence of the data history, performing a reduction operation, and performing a statistical function.

50. (Original): The method of claim 38, wherein:

the history operand comprises a programming language keyword representing a loop; and

the history operator comprises an iteration count of the loop.

51. (Original): The method of claim 38, wherein the saving of the data history further comprises:

saving the data history in an array, wherein each element of the array comprises a value associated with the history operand at a particular time.

52. (Original): The method of claim 38, wherein saving the data history further comprises:

saving the data history in a linked list.

53. (Original): The method of claim 38, wherein saving the data history further comprises:

saving the data history in a file.

a/ 54. (Original): The method of claim 38, wherein performing the history operator on the data history further comprises:

resetting the data history to null.

55. (Currently amended): A computer-readable medium having computer-executable instructions for performing steps comprising:

recognizing a history operand in source code, the history operand representing a sequence of data associated with the history of an operand instance;

finding at least one instance of the history operand in the source code in response to recognizing the history operand; and

saving a data history associated with each instance of the history operand in the storage.

56. (Currently amended): The computer-readable medium of claim 55, further comprising:

recognizing a history operator in the source code, the history operator representing a function that object code will perform on the data history associated with the history operand; and

performing the history operator on the data history.

57. (Original): The computer-readable medium of claim 55, wherein performing the history operator on the data history further comprises:

querying the data history based on contents of the data history.

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58. (Original): The computer-readable medium of claim 55, wherein the history operand comprises a label associated with a source code statement, and wherein performing the history operator on the data history further comprises:

counting a number of times the source code statement associated with the label
has been executed.
